

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 417 976 A3

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 90309764.0

(51) Int. Cl.⁵: **G01N 30/72, G01N 30/80**

(22) Date of filing: 06.09.90

(30) Priority: 12.09.89 JP 236683/89
28.08.90 JP 225906/90(43) Date of publication of application:
20.03.91 Bulletin 91/12(84) Designated Contracting States:
CH DE FR GB LI NL SE(88) Date of deferred publication of the search report:
20.05.92 Bulletin 92/21(71) Applicant: **Eisai Co., Ltd.**
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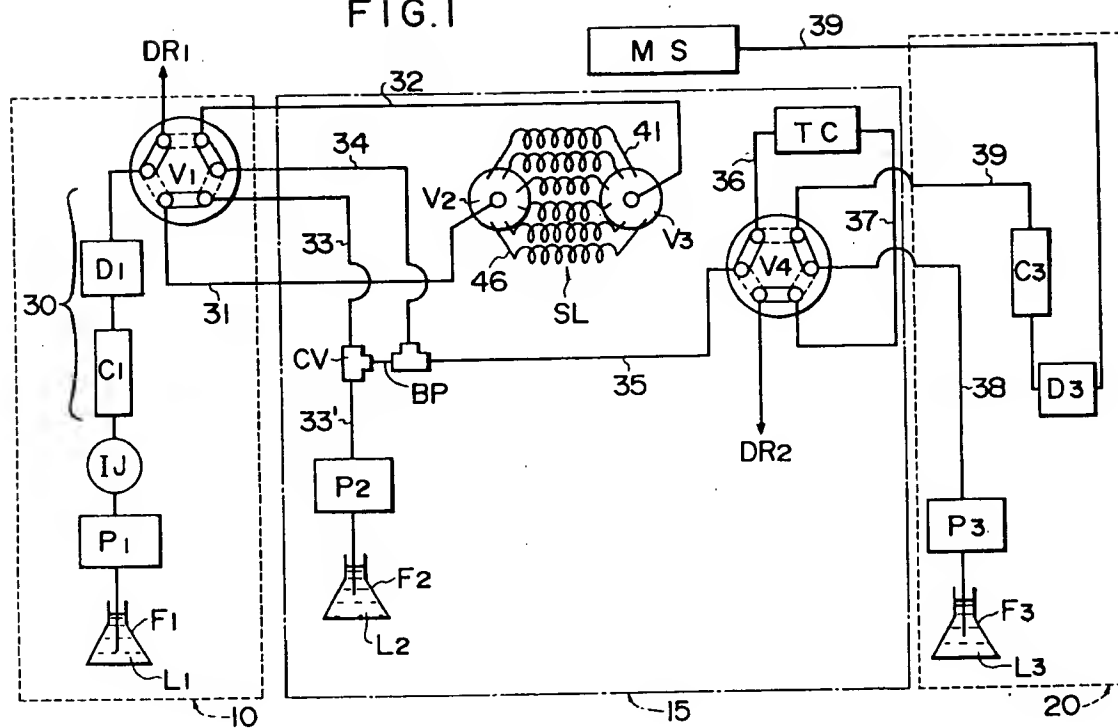
(54) **Liquid chromatography mass spectrometry method and apparatus.**

(57) A method and apparatus for liquid chromatography mass spectrometry comprises:
a 1st section (10) for separating components present in a sample to be analysed by using a first mobile phase A (L1); a 2nd section (15) including an inserting line (33') for injecting a dilute solution (L2) for diluting the first mobile phase A, and a trapping column (TC) which allows the first mobile phase A to pass through but catches components carried by the dilute solution; and, a 3rd section (20) for introducing

the components caught by the trapping column (TC) into a mass spectrometer (MS) using a second mobile phase B (L3). Preferably a separating column (C1) is included in the 1st section (10) and another separating column (C3) is included in the 3rd section (20). Preferably the 2nd section (15) includes a retainer (SL) including multiple branches (41-46) for retaining and collecting separate fractions of the components separated by the first section (10).

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FIG.1





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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	JOURNAL OF CHROMATOGRAPHY. vol. 474, 14 July 1989, AMSTERDAM NL pages 265 - 273; LUITJEN ET AL.: 'liquid chromatography-mass spectrometry of trace compounds with a moving belt interface and multi-dimensional chromatography'	1,2,6,7	G01N30/72 G01N30/80
Y	* page 268, paragraph 2 - paragraph 4; figure 5 *	3,5,8,10	
X	JOURNAL OF CHROMATOGRAPHY. vol. 474, 14 July 1989, AMSTERDAM NL pages 59 - 68; KOKKONEN ET AL.: 'applicability of continuous-flow fast atom bombardment liquid chromatography-mass spectrometry in bioanalysis dextromethorphan in plasma'	1,2,4,6,7,9	
	* page 66, paragraph 1 - page 67, paragraph 1; figure 5 *		
Y	JOURNAL OF CHROMATOGRAPHY. vol. 474, 17 July 1989, AMSTERDAM NL pages 257 - 263; WALHAGEN ET AL.: 'coupled column chromatography-mass spectrometry thermospray liquid chromatographic-mass spectrometric and liquid chromatographic-tandem mass spectrometric analysis of metoprolol enantiomers in plasma using phase-system switching'	3,5,8,10	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
	* page 258, paragraph 6 - page 259, paragraph 1 *		G01N
	* page 260, paragraph 2 - page 262, paragraph 2; figure 2 *		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 MARCH 1992	Examiner ZINNGREBE U.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document	



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	JOURNAL OF CHROMATOGRAPHY, vol. 474, 17 July 1989, AMSTERDAM NL pages 301 - 316; ESCOFFIER AT AL.: 'comparison of open-tubular liquid chromatography-mass spectrometry and direct liquid introduction liquid chromatography-mass spectrometry for the analysis of metribuzin and its metabolites in plant tissue and water samples' * page 307, paragraph 3 - page 309, paragraph 2; figure 5 *	1,6	
A	JOURNAL OF CHROMATOGRAPHY, vol. 474, 14 July 1989, AMSTERDAM NL pages 5 - 19; VAN DER GREEF ET AL.: 'liquid-chromatography-mass spectrometry the need for a multidimensional approach' * page 9, paragraph 2 - page 17; figures 4,6 *	1,6	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
The present search report has been drawn up for all claims			
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CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : technological background O : non-written disclosure P : intermediate document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category		A : member of the same patent family, corresponding document	